

**Calcitonin Control of Calcium
Metabolism During Weightlessness**

Final Report

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Contract Number NAG 2-411

GRANT
IN-52-CR
179677
6P

Objectives:

The main objective of this proposal is to elucidate calcitonin role in calcium homeostasis during weightlessness.

In this investigation our objectives are to study:

- 1) The effect of weightlessness on thyroid and serum calcitonin
- 2) The effect of weightlessness on the circadian variation of calcitonin in serum and the thyroid gland.
- 3) The role of light as zeitgeber for calcitonin circadian rhythm.
- 4) The circadian pattern of thyroid sensitivity to release calcitonin in response to calcium load.
- 5) The role of serotonin and norepinephrine in the control of calcitonin release.

The main objective of this research proposal is to establish the role of calcitonin in calcium metabolism during weightlessness condition. Understanding the mechanism of these abnormalities will help in developing therapeutic means to counter calcium imbalance in spaceflights.

Progress Report:

Using NASA Support the PI was able to publish 21 articles in refereed indexed journals and 36 abstracts please see the enclosed list). Eleven African American students were trained using NASA grant.

(NASA-CR-193622) CALCITONIN
CONTROL OF CALCIUM METABOLISM
DURING WEIGHTLESSNESS Final Report
(Florida Agricultural and
Mechanical Univ.) 6 p

N94-12960

Unclass

G3/52 0179677

Articles:

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16. Wahba, Z.Z.; K.F.A. Soliman and M.G. Kolta. Effect of Diabetes on the Cholinergic Enzyme Activities of the Urinary Bladder and the Seminal Vesicles of the Rat. *Exp. Clin. Endocrinol.* 99:26-30, 1992.
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